

CLAIMS

1. An epoxidized low-molecular-weight ethylene polymer (B), which contains an epoxy group in the polymer chain of a low-molecular-weight ethylene polymer (A), and has

- (i) a density of 870 to 1,050 kg/m³,
- (ii) a melting point of 70 to 130°C, and
- (iii) a number-average molecular weight (Mn) of 400 to 5,000.

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2. The epoxidized low-molecular-weight ethylene polymer according to claim 1, which contains 80 to 99 mol% of the structural unit derived from ethylene.

15 3. The epoxidized low-molecular-weight ethylene polymer according to claim 1, wherein the epoxy group content is 30% to 100% of the total unsaturated bonds of the low-molecular-weight ethylene polymer (A).

20 4. The epoxidized low-molecular-weight ethylene polymer according to claim 1, wherein the molecular weight distribution (Mw/Mn) is 5.0 or less, and the penetration is 15 dmm or less.

5. The epoxidized low-molecular-weight ethylene polymer according to claim 1, wherein the low-molecular-weight ethylene polymer (A) comprises (a) a structural unit derived from ethylene and at least one diene, or (b) a structural
5 unit derived from ethylene, at least one α -olefin selected from α -olefins having 3 to 12 carbon atoms and at least one diene.

6. The epoxidized low-molecular-weight ethylene polymer
10 according to claim 5, wherein the diene is a diene in the branched structure.

7. The epoxidized low-molecular-weight ethylene polymer according to claim 5, wherein the diene is
15 vinylnorbornene(5-vinylbicyclo[2,2,1]hept-2-ene), and
(i)' the density is 900 to 1,050 kg/m³, and
(ii)' the melting point is 100 to 130°C.

8. The epoxidized low-molecular-weight ethylene polymer
20 according to claim 1, which is obtained by reaction of the low-molecular-weight ethylene polymer (A) with hydrogen peroxide in the presence of a Group VI transition metal catalyst and a phase transfer catalyst.

9. The epoxidized low-molecular-weight ethylene polymer according to claim 1, wherein the low-molecular-weight ethylene polymer (A) is a polymer prepared by using a metallocene catalyst.

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10. A release agent for an electrophotographic toner, which comprises a modified low-molecular-weight ethylene polymer (C) obtained from the epoxidized low-molecular-weight ethylene polymer (B) according to claim 1 and a
10 carboxylic acid compound, and the toner having toner particles is obtained by suspending at least a polymerizable monomer, a coloring agent and said release agent in an aqueous dispersion medium and subjecting them to a suspension polymerization using a polymerization initiator.

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11. An electrophotographic toner for developing an electrostatic charge image, which comprises a binder resin for a toner, a coloring agent, a release agent, and a modified low-molecular-weight ethylene polymer (C) obtained
20 from the epoxidized low-molecular-weight ethylene polymer (B) according to claim 1 and a carboxylic acid compound.

12. The electrophotographic toner for developing an electrostatic charge image according to claim 11, which is

prepared by the preparation process comprising at least the step of mixing a release agent dispersion having release agent particles dispersed therein.

5 13. The electrophotographic toner for developing an electrostatic charge image according to claim 11, which comprises 1 to 20 parts by mass of the modified low-molecular-weight ethylene compound (C) in the toner.

10 14. The electrophotographic toner for developing an electrostatic charge image according to claim 11, wherein the release agent is the release agent according to claim 10.

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